Release notes for ENDF/B Development n-057_La_139 evaluation

April 26, 2017

- `checkr` Warnings:

  1. A previous error halted parsing of the current section
     MAT=5728, MF= 1, MT=451 (1): Parsing stopped

```
ERROR(S) FOUND IN MAT=5728, MF= 1, MT=451
   SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER      168 TO     172
```

- `checkr` Errors:

  1. A variable is outside the allowed ENDF range
     MAT=5728, MF= 1, MT=451 (0): Variable range

```
ERROR(S) FOUND IN MAT=5728, MF= 1, MT=451
   MOD =     1 OUT OF RANGE     0 -     0           RECORD NUMBER     168
```

  2. Missing a section in directory so your directory is messed up. This error will break everything else
     MAT=5728, MF=33, MT= 4 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=5728, MF=33, MT=  4
   SECTION 33/  4 NOT IN DIRECTORY                 RECORD NUMBER    4697
```

  3. Missing a section in directory so your directory is messed up. This error will break everything else
     MAT=5728, MF=33, MT= 16 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=5728, MF=33, MT= 16
   SECTION 33/ 16 NOT IN DIRECTORY                 RECORD NUMBER    4756
```

  4. Missing a section in directory so your directory is messed up. This error will break everything else
     MAT=5728, MF=33, MT=102 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=5728, MF=33, MT=102
   SECTION 33/102 NOT IN DIRECTORY                 RECORD NUMBER    4766
```

- `psyche` Warnings:

  1. Gamma width not in agreement with PSYCHE's expectations
     FILE 2 / SECTION 151 / ISOTOPE MASS = 139. L = 0 / AT RESONANCE ENERGY 8.03520E+03 EV. THE GAMMA WIDTH 6.55111E-01 DEVIATES TOO MUCH FROM THE AVERAGE 6.10036E-02 (0): Gamma width

```
FILE  2
   SECTION 151
        ISOTOPE MASS = 139. L =  0
                AT RESONANCE ENERGY  8.03520E+03 EV. THE GAMMA WIDTH  6.55111E-01 DEVIATES TOO MUCH FROM THE AV
```

  2. Strength function in URR not in agreement with PSYCHE's expectations
     FILE 2 / SECTION 151 / ISOTOPE MASS = 139. L = 1 / STRENGTH FUNCTION IS 2.69609E-05 / STRENGTH FUNCTION 2.69609E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
        ISOTOPE MASS = 139. L =  1
                 STRENGTH FUNCTION IS  2.69609E-05
                                  STRENGTH FUNCTION 2.69609E-05
... [1 more lines]
```

3. Strength function in URR not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99115E-05 / STRENGTH FUNCTION 3.99115E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99115E-05
                       STRENGTH FUNCTION 3.99115E-05
                                         LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

4. Strength function in URR not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99115E-05 / STRENGTH FUNCTION 4.00008E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99115E-05
                       STRENGTH FUNCTION 4.00008E-05
                                         LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

5. Strength function in URR not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99115E-05 / STRENGTH FUNCTION 3.99997E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99115E-05
                       STRENGTH FUNCTION 3.99997E-05
                                         LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

6. Strength function in URR not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99115E-05 / STRENGTH FUNCTION 4.00000E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99115E-05
                       STRENGTH FUNCTION 4.00000E-05
                                         LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

7. Strength function in URR not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99115E-05 / STRENGTH FUNCTION 3.99995E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99115E-05
                       STRENGTH FUNCTION 3.99995E-05
                                         LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

8. Strength function in URR not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99115E-05 / STRENGTH FUNCTION 4.00002E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99115E-05
                       STRENGTH FUNCTION 4.00002E-05
                                         LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

9. Strength function in URR not in agreement with PSYCHE's expectations
   FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99115E-05 / STRENGTH FUNCTION 3.99998E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99115E-05
                       STRENGTH FUNCTION 3.99998E-05
                                         LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

10. Strength function in URR not in agreement with PSYCHE's expectations
    FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99115E-05 / STRENGTH FUNCTION 4.00005E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99115E-05
                       STRENGTH FUNCTION 4.00005E-05
                                         LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

11. Strength function in URR not in agreement with PSYCHE's expectations
    FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99115E-05 / STRENGTH FUNCTION 3.99993E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99115E-05
                       STRENGTH FUNCTION 3.99993E-05
                                         LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

12. Strength function in URR not in agreement with PSYCHE's expectations
    FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99126E-05 / STRENGTH FUNCTION 3.99126E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99126E-05
                        STRENGTH FUNCTION 3.99126E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

13. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99126E-05 / STRENGTH FUNCTION 4.00000E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99126E-05
                        STRENGTH FUNCTION 4.00000E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
... [1 more lines]
```

14. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99126E-05 / STRENGTH FUNCTION 3.99990E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99126E-05
                        STRENGTH FUNCTION 3.99990E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

15. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99126E-05 / STRENGTH FUNCTION 3.99997E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99126E-05
                        STRENGTH FUNCTION 3.99997E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
... [2 more lines]
```

16. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99126E-05 / STRENGTH FUNCTION 4.00010E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99126E-05
                        STRENGTH FUNCTION 4.00010E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

17. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99126E-05 / STRENGTH FUNCTION 4.00006E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99126E-05
                        STRENGTH FUNCTION 4.00006E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

18. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 4.00005E-05 / STRENGTH FUNCTION 4.00005E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  4.00005E-05
                        STRENGTH FUNCTION 4.00005E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
... [1 more lines]
```

19. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 4.00005E-05 / STRENGTH FUNCTION 4.00000E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  4.00005E-05
                        STRENGTH FUNCTION 4.00000E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
... [3 more lines]
```

20. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 4.00005E-05 / STRENGTH FUNCTION 3.99996E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  4.00005E-05
                        STRENGTH FUNCTION 3.99996E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

21. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 4.00005E-05 / STRENGTH FUNCTION 3.99992E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  4.00005E-05
                        STRENGTH FUNCTION 3.99992E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

22. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 4.00005E-05 / STRENGTH FUNCTION 4.00008E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  4.00005E-05
                        STRENGTH FUNCTION 4.00008E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

23. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99989E-05 / STRENGTH FUNCTION 3.99989E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99989E-05
                        STRENGTH FUNCTION 3.99989E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
... [1 more lines]
```

24. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99989E-05 / STRENGTH FUNCTION 4.00000E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99989E-05
                        STRENGTH FUNCTION 4.00000E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

25. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99989E-05 / STRENGTH FUNCTION 4.00016E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99989E-05
                        STRENGTH FUNCTION 4.00016E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

26. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99989E-05 / STRENGTH FUNCTION 4.00005E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99989E-05
                        STRENGTH FUNCTION 4.00005E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
... [2 more lines]
```

27. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99989E-05 / STRENGTH FUNCTION 3.99990E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99989E-05
                      STRENGTH FUNCTION 3.99990E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

28. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 2.00000E+04. STRENGTH FUNCTION IS 3.99989E-05 / STRENGTH FUNCTION 3.99985E-05 / LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  2.00000E+04. STRENGTH FUNCTION IS  3.99989E-05
                      STRENGTH FUNCTION 3.99985E-05
                                          LIES OUTSIDE LIMITS 1.00000E-04 TO 8.00000E-04
```

- `recent` Warnings:

1. Statistical weight of certain L values were incorrect
0: RRR goof (a)

```
 Calculate Cross Sections from Resonance Parameters (RECENT 2015-1)
 ==========================================================================
 Retrieval Criteria-----------        MAT
 File 2 Mimimum Cross Section- 1.0000E-10 (Standard Option)
 Reactions with No Background-     Output (Resonance Contribution)
... [598 more lines]
```

- `fudge-4.0` Warnings:

1. Missing a channel with a particular angular momenta combination
resonances / resolved (Error # 1): missingResonanceChannel

```
WARNING: Missing a channel with angular momenta combination L = 0, J = 2.0 and S = 2.0 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 2.0 and S = 2.0 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 3.0 and S = 2.0 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 3.0 and S = 3.0 for "capture"
        ... plus 1 more instances of this message
```

2. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 0 (n + La139): / Form 'eval': / Component 0 (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

3. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 0 (n + La139): / Form 'eval': / Component 1 (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

4. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 1 ((z,n)): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

5. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 2 (n[multiplicity:'2'] + La138): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

6. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 3 (La140 + gamma): / Form 'eval': / Component 0 (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

7. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 3 (La140 + gamma): / Form 'eval': / Component 1 (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

- `fudge-4.0` Errors:

1. The spin statistical weights are off, indicating missing channels
resonances / resolved / MultiLevel_BreitWigner (Error # 0): badSpinStatisticalWeights

```
WARNING: The spin statical weights for L=1 sums to 2.0, but should sum to 3.0.  You have too few channels for re
```

2. Calculated and tabulated Q values disagree.
reaction label 13: n[multiplicity:'2'] + La138 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -11672830.59147644 eV vs -8.7782e6 eV!
```

3. Energy range of data set does not match cross section range
reaction label 13: n[multiplicity:'2'] + La138 / Product: n / Distribution: / uncorrelated - angular - XYs2d: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (8841902.0 -> 20000000.0) vs (8841900.0 -> 20000000.0)
```

4. Energy range of data set does not match cross section range
reaction label 13: n[multiplicity:'2'] + La138 / Product: n / uncorrelated - energy - XYs2d: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (8841902.0 -> 20000000.0) vs (8841900.0 -> 20000000.0)
```

5. Calculated and tabulated Q values disagree.
reaction label 14: n[multiplicity:'3'] + La137 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -19168175.44387817 eV vs -1.625e7 eV!
```

6. Calculated and tabulated Q values disagree.
reaction label 15: n + H1 + Ba138 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -9153533.523742676 eV vs -6.2549e6 eV!
```

7. Energy range of data set does not match cross section range
reaction label 15: n + H1 + Ba138 / Product: n / Distribution: / uncorrelated - angular - XYs2d: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (6300302.0 -> 20000000.0) vs (6300300.0 -> 20000000.0)
```

8. Energy range of data set does not match cross section range
reaction label 15: n + H1 + Ba138 / Product: n / uncorrelated - energy - XYs2d: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (6300302.0 -> 20000000.0) vs (6300300.0 -> 20000000.0)
```

9. Calculated and tabulated Q values disagree.
reaction label 16: La140 + gamma (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 2266154.828063965 eV vs 5.1603e6 eV!
```

10. Calculated and tabulated Q values disagree.
reaction label 17: n + He4 + Cs135 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -4969255.818756104 eV vs -2.001e6 eV!
```

11. Calculated and tabulated Q values disagree.
reaction label 18: H1 + Ba139_s (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -4430102.574539185 eV vs -1.5315e6 eV!
```

12. Calculated and tabulated Q values disagree.
reaction label 19: H2 + Ba138_s (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -6928967.422805786 eV vs -4.0304e6 eV!
```

13. Calculated and tabulated Q values disagree.
reaction label 20: H3 + Ba137_s (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -9283455.388519287 eV vs -6.3847e6 eV!
```

14. Calculated and tabulated Q values disagree.
reaction label 21: He3 + Cs137_s (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -10440492.52693176 eV vs -7.5416e6 eV!
```

15. Calculated and tabulated Q values disagree.
reaction label 22: He4 + Cs136_s (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 1858919.463409424 eV vs 4.7623e6 eV!
```

- `njoy2012` Warnings:

1. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 16
                         only mf4/mf5 provided
```

2. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
   groupr...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 17
                         only mf4/mf5 provided
```

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
   groupr...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 22
                         only mf4/mf5 provided
```

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
   groupr...compute self-shielded group-averaged cross-sections (3): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 28
                         only mf4/mf5 provided
```

5. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
   groupr...compute self-shielded group-averaged cross-sections (4): GROUPR/conver (0)

```
---message from conver---cannot do complete particle production for mt= 91
                         only mf4/mf5 provided
```